A stylized illustration of a pair of human lungs, colored in shades of pink and red, with visible bronchial tree structures. The lungs are positioned behind the title text.

ASTHMA AWARENESS AMONG INDIANA BUILDERS AND REMODELERS

Results of an Asthma Awareness Survey conducted by
the Indiana Builders Association and Improving Kids' Environment

August 2006

This publication was supported by Grant/Cooperative Agreement Number U59/CCU525032-01 from Centers for Disease Control and Prevention (CDC). Its contents are solely the responsibility of the authors and do not necessarily represent the official views of CDC.

Executive Summary

A survey of 313 people involved in the construction and remodeling professions in Indiana reveals that:

- 51.4% of them had some personal knowledge or experience with asthma
- 75.7% of them knew that asthma attacks can be triggered by specific predictable things in the environment
- Significant numbers knew that pollen (87.5%), mold (85.0%), dog and cat dander (78.3%) and dust mites (71.2%) are asthma triggers
- Fewer than 50% knew that cockroaches and rodents are asthma triggers (40.6% and 46.3% respectively)
- During new construction or remodeling, 85.3% identified dust-generating activities as potentially causing an asthma attack. Smaller percentages identified the use of adhesives, paints and other coatings (70.6%), off-gassing of products (54.3%), and dampness (49.8%)
- After construction or remodeling, 62.9% said that lack of filtration was the condition most likely to create an asthma trigger, followed by inadequate ventilation (55.3%), a damp indoor environment (43.1%) and leaking air handling systems (28.1%)
- 26.8% responded that they had ever done a job where they knew a person with asthma would be occupying the built space
- 66.5% agreed that asthma is affected by construction practices
- 78.6% agreed that builders and remodelers need education on construction practices associated with asthma and asthma triggers
- 75.1% stated that they would like more information on the subject
- 61.7% agreed that the construction industry must consider asthma issues when selecting construction materials and practices
- 45% were uncertain about whether they would modify their practice or use different materials as a result of the survey.

These results indicate that builders and remodelers:

- * Realize that what they do on the job can affect people with asthma;
- * Want more education and information on this issue;
- * Feel that the best way to get this training is through professional associations;
- * Need to know more about how their activities can create conditions for the growth of mold;

- * Need to know more about how rodents and cockroaches can be asthma triggers and how remodeling activities can disturb droppings and frass¹
- * Need to incorporate into their discussions with potential customers questions about whether anyone in the household has asthma and be prepared to address how the project can be done safely.

Introduction

In 2004, the Indiana Joint Asthma Coalition adopted the Indiana Asthma Plan.² The five-year plan establishes goals, objectives and strategies that can be used by organizations, professions and individuals to improve the health of Hoosiers who have asthma.³

One of the areas addressed in the Plan is the impact of environmental factors on Hoosiers with asthma. And one of the specific environmental factors identified is construction activities. One of the actions in the Plan is a survey of people in the building trades about environmental hazards for asthma and construction and renovation techniques for reducing environmental hazards in homes, rental properties and commercial buildings.⁴

The Indiana State Department of Health contracted with Improving Kids' Environment, Inc. (IKE) to carry out this project.⁵ IKE invited the Indiana Builders Association to participate as a partner.⁶ The collaboration between IKE and IBA is a good example of organizations with divergent goals being positively and synergistically supported through mutual focus on a single objective that is fitting for both organizations. With ongoing oversight by ISDH, IKE and IBA conducted

¹ "Frass" is "debris or excrement produced by insects."

<http://education.yahoo.com/reference/dictionary/entry/frass>.

² *A Strategic Plan for Addressing Asthma in Indiana* (December 2004), www.in.gov/isdh/programs/asthma/pdfs/IndianaAsthmaPlan.pdf.

³ *Id.* at 13.

⁴ *Id.* at 53. In addition, the Plan calls for the development of "technical information for an outreach tool for building-related professionals to increase awareness about environmental hazards for asthma and how to reduce those hazards. *Id.* The results of this survey will assist in the development of this outreach tool.

⁵ Improving Kids' Environment is a non-profit organization based in Central Indiana that works to reduce environmental threats to children's health and to assure information about environmental conditions is readily available to the public so that parents can make informed choices that affect their children's health.

⁶ The Indiana Builders Association (IBA) is a statewide trade association based in Indianapolis, representing nearly 6,000 firms within 33 local associations. It is affiliated with the National Association of Home Builders based in Washington, DC, representing over 235,000 firms. Association membership is comprised of home builders, remodelers, multi-family builders, developers and industry-related firms who provide materials and services to housing. The IBA's mission is to educate its members, the general public, elected officials and regulatory bodies to maintain and develop workable and affordable regulations and laws that enable the citizens of Indiana to own a home. IBA members are committed to providing decent, safe, and affordable housing to all citizens of Indiana.

this survey during the spring and summer of 2006. This report explains the methodology used, presents the results, and offers some conclusions and recommendations for next steps.

Methodology

Development of Survey Questions. IKE and IBA developed the survey questions with the assistance of experts and ISDH.⁷ A copy of the survey is included as Appendix 1. The survey contained 10 questions and was on a single 2-sided sheet.⁸

Who were the Survey Subjects? The survey was administered to members of the Indiana Builders Association in two phases, as described below.

The survey was first administered during the IBA's Annual Conference known as the Indiana Midwest Builders' Convention, February 23 and 24, 2006. Surveys were handed out at the end of the Annual Board of Directors Meeting on February 23rd and educational breakout sessions on February 24th, with a brief introduction by IBA staff stating the goals and affiliations of the project. The subjects took the surveys and returned them to IBA staff immediately upon completion.

The second batch of surveys was administered at three meetings, two of local IBA chapters during early summer, and one at the statewide August 22nd Board of Directors Meeting. Again, IBA staff provided a brief introduction, then handed out the (revised) surveys and collected them from the subjects. No one declined to complete the survey.

How Many Valid Surveys Were Returned? IBA collected 321 completed surveys. However, 8 of the returned surveys had fewer than 50% of the questions answered and therefore were discarded. Thus, there were 313 valid surveys returned.

⁷ Our expert advisors were Jack Leonard of the Environmental Management Institute (Indianapolis); Tom Neltner of the National Center for Healthy Housing (Washington, DC); Mike Bell of Bell Construction (Westville, IN and IBA Past President); Steve Robinson of R E Construction (New Castle, IN and IBA Vice President); Eric Woerner of Air Tron, Inc. (Indianapolis); Mike Honan of Delta Services, Inc. (Indianapolis); and Dr. Morris French of Micro-air, Inc. (Indianapolis).

⁸ After the first batch of surveys was completed, IKE and IBA slightly adjusted the wording of questions, based on review of the initial results and recommendations by ISDH staff. See Appendix XX. Analysis of the answers from the original and revised surveys show that the wording changes had no effect on the answers.

Limitations/Comments Regarding Survey.

There are several limitations on this survey that should be noted.

1. The universe of survey subjects came from the IBA membership. This means that they represented companies that can be expected to have, on average, a higher level of awareness of issues affecting their profession, better access to training, and sufficient resources to justify membership dues, which provide them with, among other benefits, state-of-the-art information from national sources in housing.
2. The universe of survey subjects also has personally experienced the difficulties involved in their business and the adverse effects of mold, which could have made them predisposed toward not trusting a survey regarding health considerations.
3. It would have been helpful to provide a “Not Applicable” option.
4. A number of respondents checked more than one affiliation at the end of the survey. Although they may certainly have legitimately more than one affiliation, we have no way of knowing which is the predominant one for purposes of analyzing the results.
5. Question 5, which asked the respondents to write in specific products, situations or work practices that they felt might trigger an asthma attack during new construction, generated a lengthy list of suggestions, some of which were more responsive than others. The input is of interest, however, and shows that some respondents understand well some of the triggering materials or activities.

Results

Following are the results of the survey, each result preceded by the question it is responding to.

All results are out of 313 surveys returned

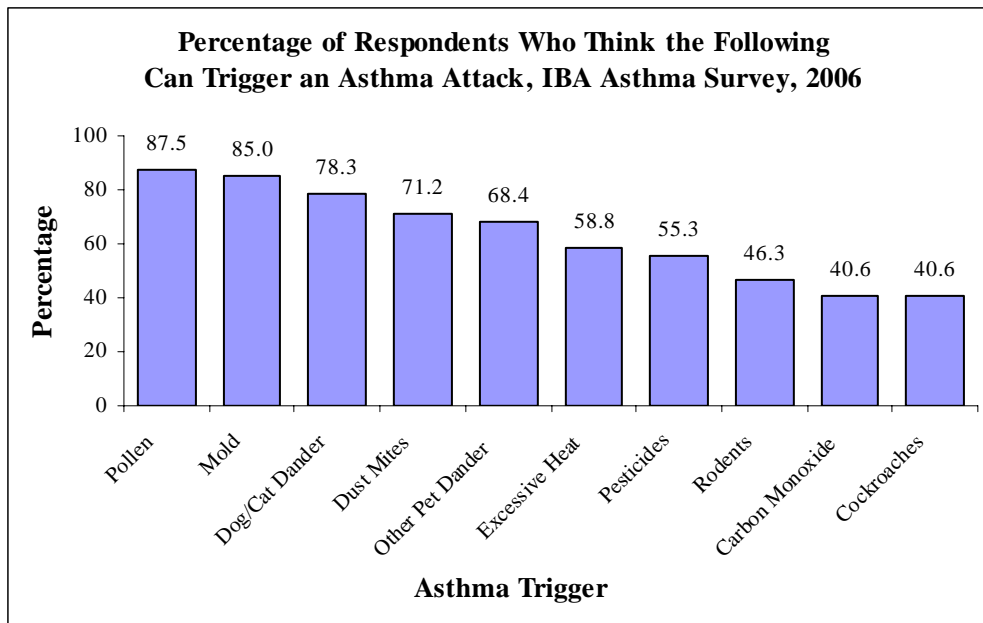
1. More people in Indiana and the United States are becoming aware of asthma as a chronic disease. Do you or your family have personal knowledge or experience regarding asthma?

YES **161 = 51.4 %** NO 151 = 48.2 Missing 1 = .3%⁹

2. Is the following TRUE or FALSE? Although asthma is chronic, asthma attacks are triggered by specific predictable things in the environment.

TRUE **237 = 75.7 %** FALSE 72 = 23 % Missing 4 = 1.3%

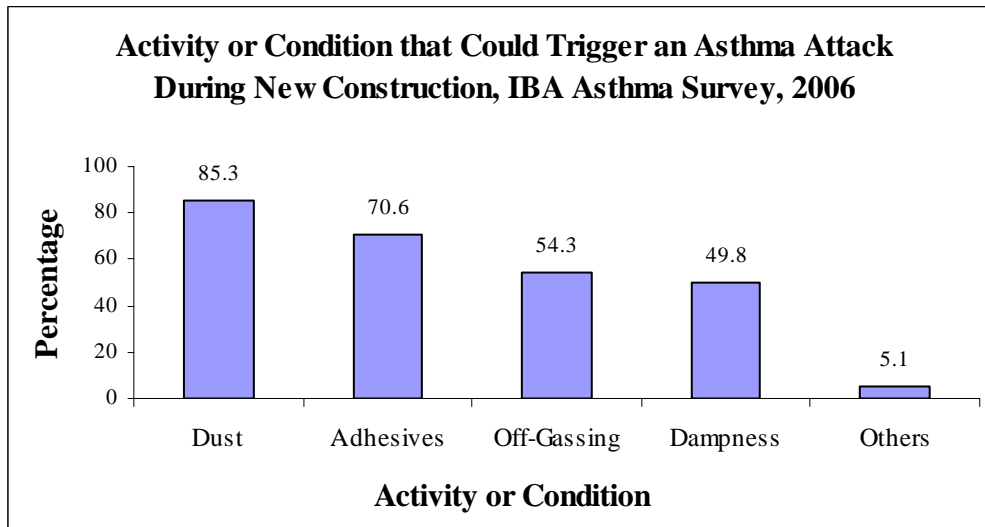
3. Based on your knowledge, which one or more of the following can trigger an asthma attack?
Missing **11 = 3.5%**



⁹ A “missing” result means that this question was not answered on the survey.

4. During new construction, including remodeling, which of the following activities or conditions might trigger an asthma attack?

Missing 7 = 2.2%



5. If you checked any of the above, please provide details about specific products or ingredients in them, work practices, or situations that come to mind.

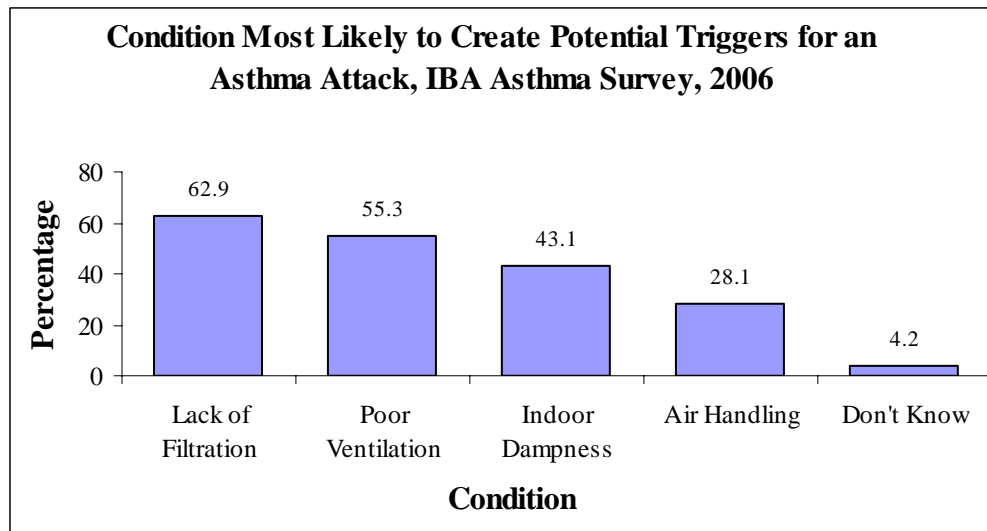
Missing 139=44.4 %

Category	Answers Provided
Adhesives, paints, coatings	Oil based Paint (13), Glues (10), Breathing the fumes (9), VOCs (9), Spray Paint/Paint (8), Floor Finishes/Adhesives (5), Formaldehyde (4), Drywall Mud (3), Lead (3), Organic Solvents (3), Chemicals/Pigments (2), Paint Strippers (2), Petroleum Products (2), Varnishes (2), Odors (2), Hydrocarbons (1), OSB Demolition Lumber (1), Blant Jack (1), Customer Complaints (1), Polyurethane(1), Caulk (1), Allergic Reactions of Items Released when/after applied (1), Benzene (1), Naptha (1), Structural Adhesives (1), Work/Home (1)
Activities that generate dusts	Drywall Sanding (48), Sawing/Grinding/Cutting (39), Sanding (35), Excavation/Earth moving (9), Clean-up (8), Demolition (16), Sweeping/Vacuuming (12), Any Remodeling Activities (5), Old Carpets (4), Breathing in too much dust (2), Dust Airway Constriction in Cilia of lungs (1), Dust Mite Allergens (1), Pollen (1), Work/Home (1), HVAC (1), Not wearing a mask (1), None (1)

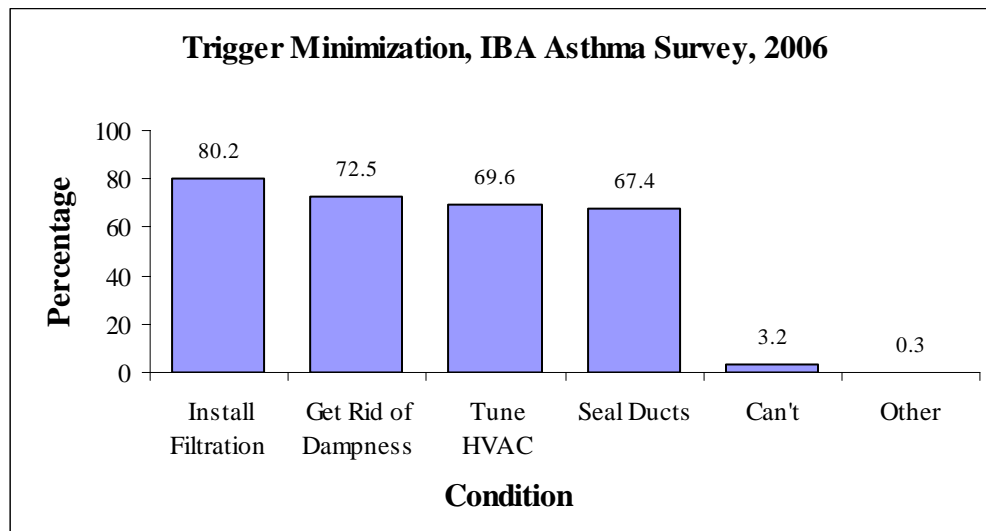
Off-gassing	Carpet/ OSB (18), Glues (5) , Inhaling Fumes (4), Paint (3), Odor (2), Vinyl Flooring (2), Formaldehyde (2), Spray Cans (1), Wood Products (1), Gas Appliances/Tools (1), Burning (1), Products of Organic Solvents (1), Chemicals (1), Chlorine (1), VOCs (1), Insulation (1), Re-fueling (1), Portable Heaters (1), Poor Ventilation (1), CM (1), Sewer (1), CO/CO2(1), Carbon (1), Spray Foam (1), Drying Process (1), Kerosene (1)
Dampness	Mold/Spores (24), Wet Basements/Crawl Spaces (13), Moisture/Humidity (5), Water Leaks (4), Wet Construction Materials (3), Water Filtration (2), Improper Insulation (2), Musty Smell (2), Rain/Weather (2), Carpet (1), Family member suffer in excessive dampness (1), Paint (1)
Other	Perfume (2), Mowing Yards (1), Heat/Air (1), Strenuous Activities (1), Animals (1), Foliage (1), Lack of Ventilation (1), Smoke (1)

6. After new construction or remodeling, what condition is most likely to create a potential trigger for an asthma attack?

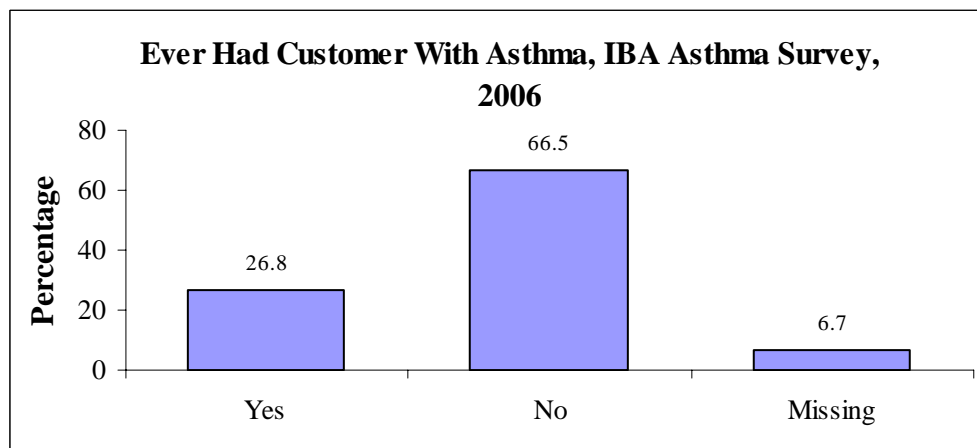
Missing 11 = 3.5%



7. How can you minimize the above condition from occurring (please check all that apply)?
Missing 25 = 8%



8. Have you ever done a job for a customer where you were aware that a person with asthma would be occupying the built space?
YES 84=26.8% NO 208=66.5 Missing 21 = 6.7%



If YES, please describe what you did voluntarily, or were asked to do, differently, because of this person's health condition.

Responses:

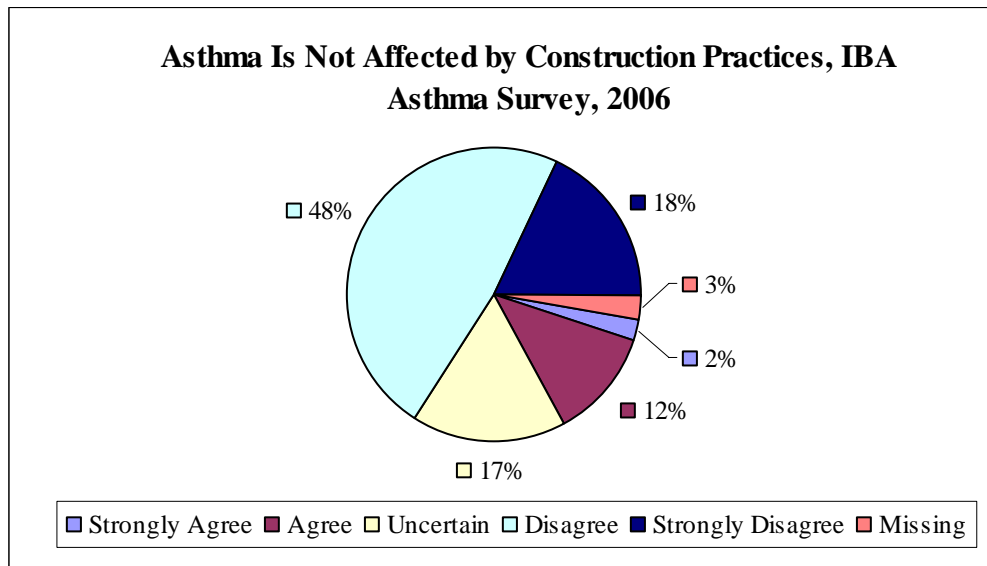
Install Different Floor Coverings, e.g., no carpet (12)
Special Detailing/Cleaning (11)
Contained Work Space (9)
Add HEPA Filters (8)
Dust Control (6)
Install Electronic Filtering System (6)
Asked Person to Leave Jobsite while Working (4)

Ultraviolet light/Filmations system in HVAC (3)
Used Safer Products (3)
Nothing (3)
Fixed Duct Work (2)
No Smoking (1)
Clean Air Ducts (1)
Volunteered to do the Job Differently (1)
Extra Drying time for Drywall and Other Construction Materials (1)
Sealed Duct Opening (1)
Ran Electric Heaters during Project instead of Furnace (1)

9. Please answer the following by circling the appropriate response :

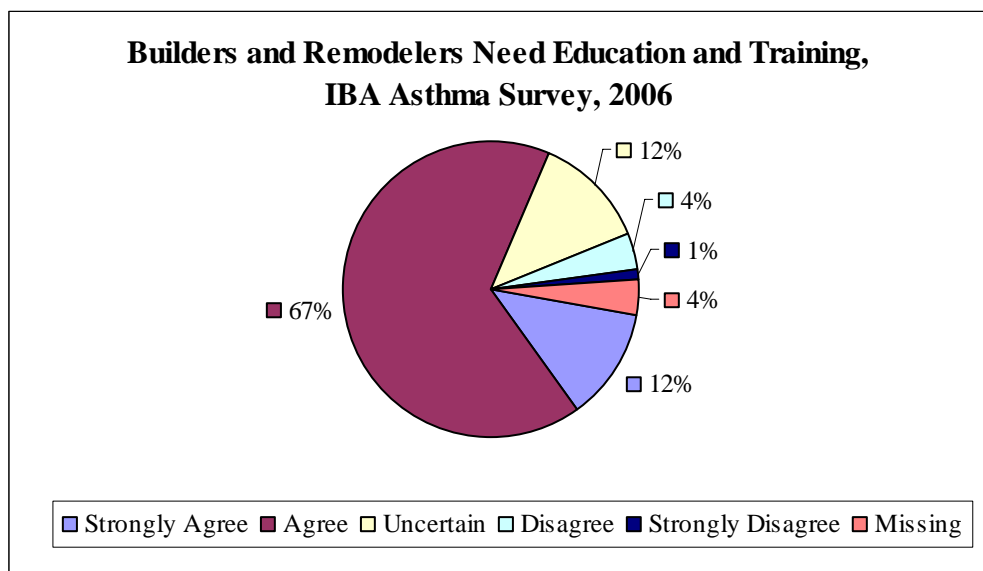
a. A person's asthma is not affected by construction practices.

Strongly Agree 7=2.2% Agree 37=11.8% Uncertain or Don't Know 53=16.9%
 Disagree 152=48.6% Strongly Disagree 56=17.9% Missing 8=2.6%



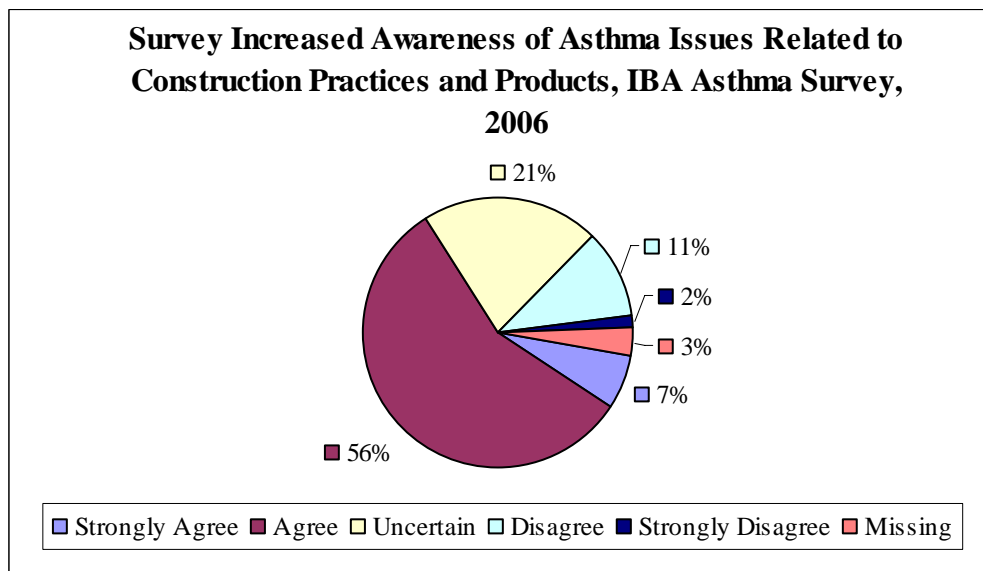
- b. Builders and remodelers need education on construction practices associated with asthma and asthma triggers.

Strongly Agree 38=12.1% Agree 208=66.5% Uncertain or Don't Know 39=12.5%
 Disagree 12=3.8% Strongly Disagree 4=1.3% Missing 12 = 3.8%



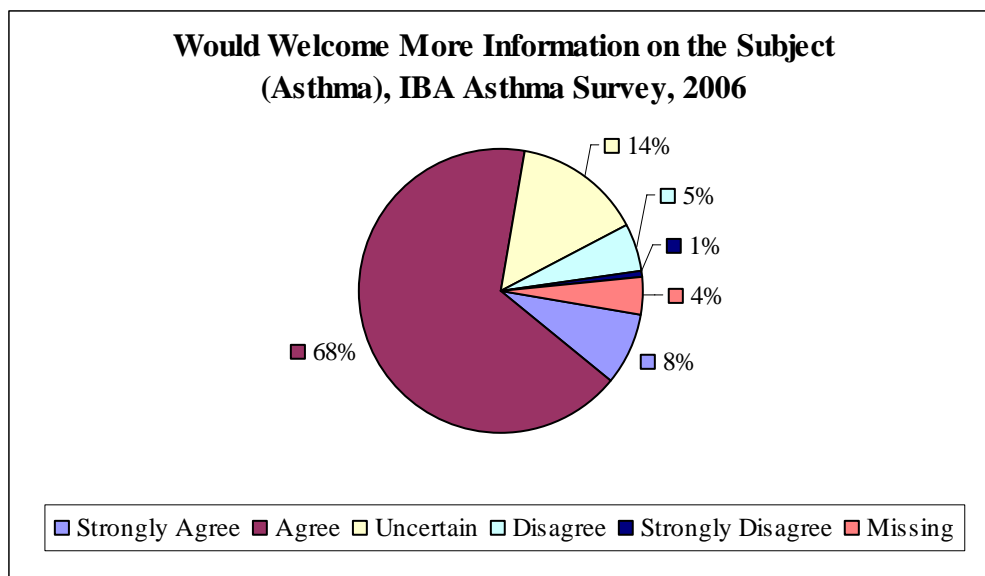
- c. This survey increased my awareness of asthma issues related to construction practices and products.

Strongly Agree 21=6.7% Agree 177=56.5% Uncertain or Don't Know 67=21.4%
 Disagree 33=10.5% Strongly Disagree 5=1.6% Missing 10 = 3.2%



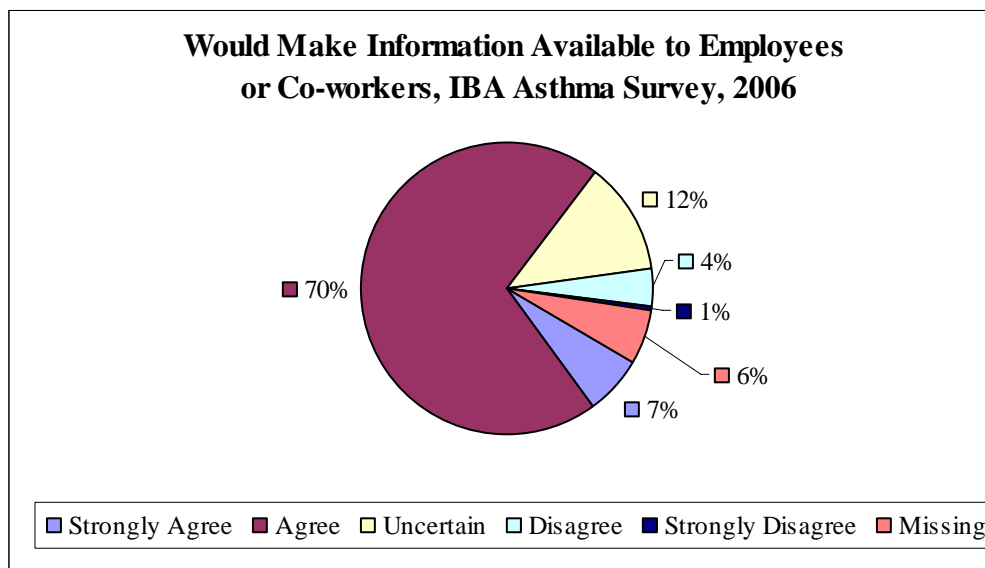
d. I would welcome information on this subject.

Strongly Agree 25=8% Agree 210=67.1% Uncertain or Don't Know 45=14.4%
 Disagree 17=5.4% Strongly Disagree 2=.6% Missing 14 = 4.5%



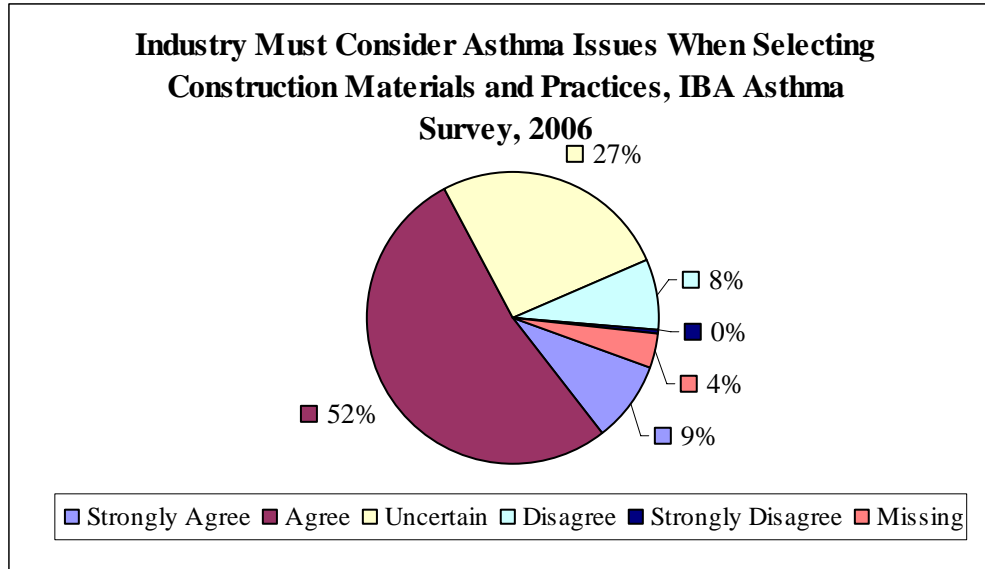
e. I would make the information available to employees or co-workers.

Strongly Agree 21=6.7% Agree 220=70.3% Uncertain or Don't Know 39=12.5%
 Disagree 13=4.2% Strongly Disagree 2=.6% Missing 18 = 5.8%



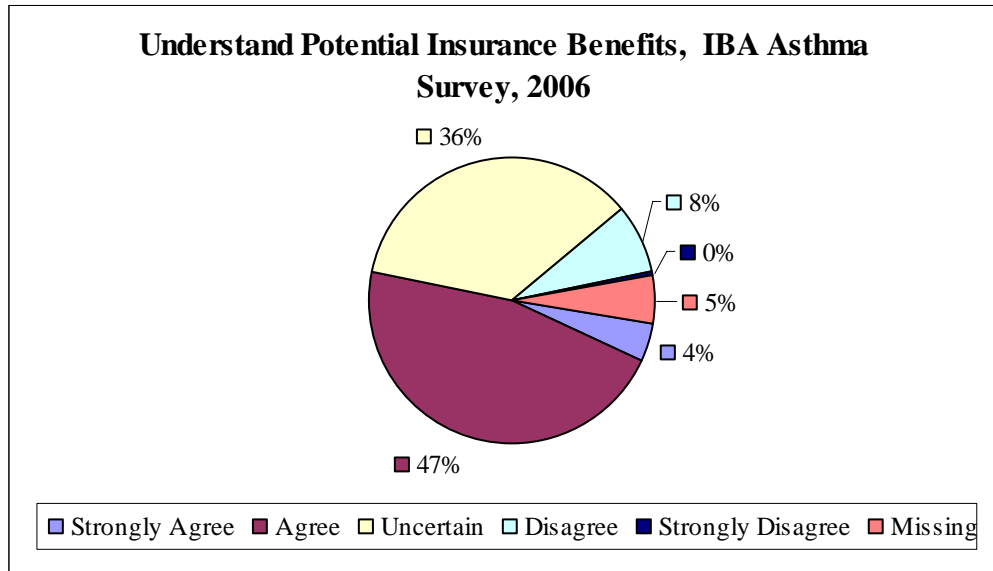
- f. I believe that the construction industry must consider asthma issues when selecting construction materials and practices.

Strongly Agree 28=9% Agree 165=52.7% Uncertain or Don't Know 83=26.5%
Disagree 24=7.7% Strongly Disagree 1=.3% Missing 12 = 3.8%



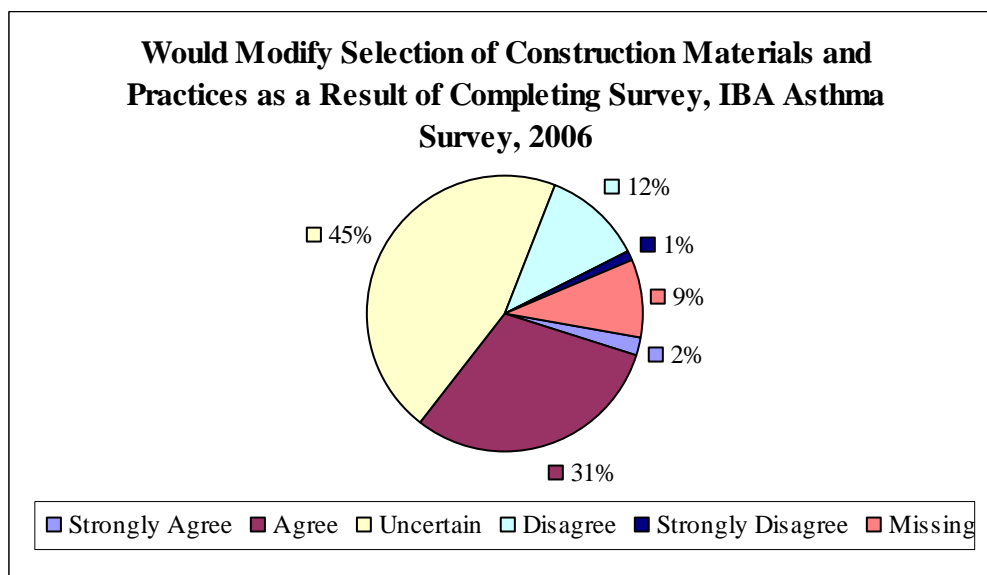
- g. I understand potential insurance benefits for the builder/remodeler regarding the selection of construction materials and practices that take asthma issues into consideration.

Strongly Agree 13=4.2% Agree 144=46% Uncertain or Don't Know 113=36.1%
 Disagree 25=8% Strongly Disagree 1=.3% Missing 17 = 5.4%



- h. I will modify my selection of construction materials and practices as a result of completing this survey.

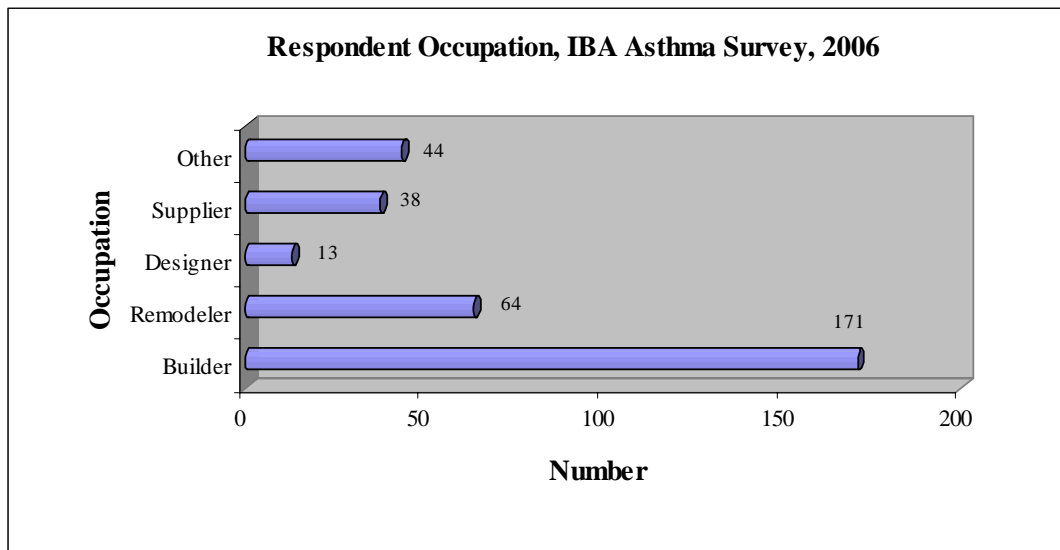
Strongly Agree 7=2.2% Agree 96=30.7% Uncertain or Don't Know 141=45%
 Disagree 37=11.8% Strongly Disagree 3=1% Missing 29 = 9.3%



10. There are several ways to provide information to those in the construction trades. Please indicate how effective you think each of the following would be, with 1 being the least effective and 5 being the most effective:

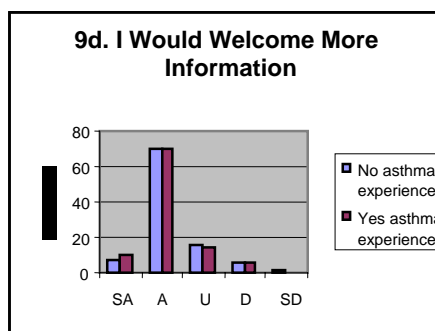
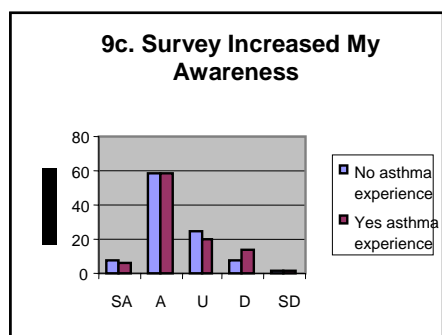
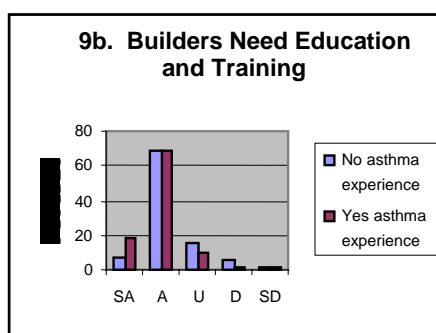
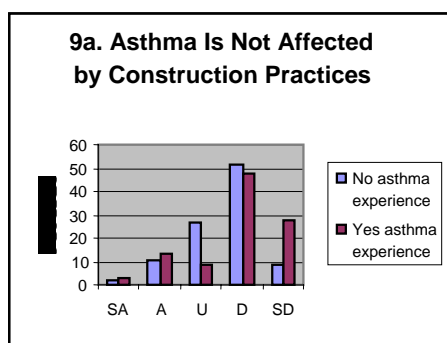
a. Training sessions offered through trade associations	1	2	3	4	5	<u>3.9 avg</u>
b. Training sessions offered through suppliers	1	2	3	4	5	<u>3.6 avg</u>
c. Printed information available at suppliers	1	2	3	4	5	<u>3.4 avg.</u>
d. Other/ Website	1	2	3	4	5	<u>3.3 avg.</u>

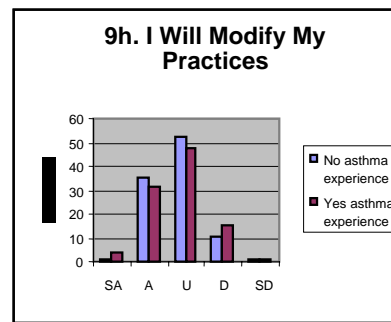
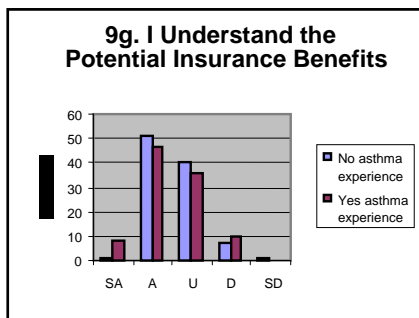
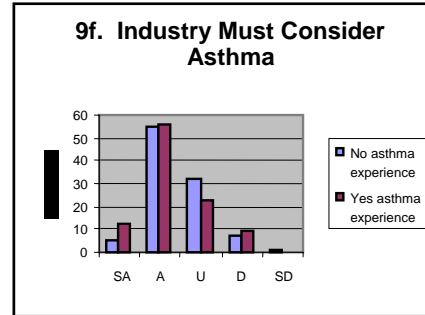
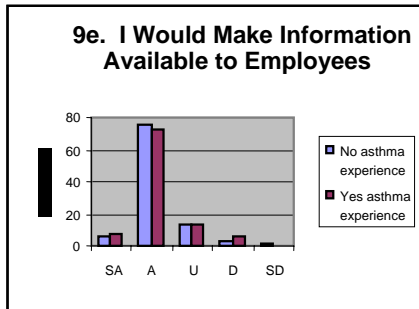
I am a: Builder/Employee of a Builder **171** Remodeler **64** Designer **13** Supplier **38** Other **44**



Is there a correlation between people who answered “No” to the question “Do you or your family have personal knowledge or experience regarding asthma?” and the answers they gave to Question 9 (a-h)?

After a review of the data, a comparison of the answers to multipart Question 9 shows that, for the most part, whether or not a person has had personal knowledge or experience with asthma ***does not*** correlate with answers to these other questions, as shown in the charts below:





The answers to all of these questions are virtually the same with the exception of Question 9a: Do you agree or disagree with the statement “Asthma is not affected by construction practices”? 26.5% of those without personal knowledge or experience with someone with asthma answered “uncertain,” compared to 8.9% of those with personal experience. Likewise, 8.8% of those without personal knowledge or experience strongly disagreed with the statement, compared to 27.4% of those with personal experience. This suggests that builders and remodelers who have asthma themselves or know someone with asthma, better understand the connection between construction activities and the kinds of situations that can trigger an asthma attack.

It is interesting, and encouraging, that 75% or more of the total survey population agreed (or strongly agreed) that builders need education and training, that they would welcome more information and make it available to employees. And 61% agreed or strongly agreed that the industry must consider asthma when selecting construction materials and practices.

Conclusions and Observations

Awareness of asthma and its causes. 51.4% of the respondents had some personal knowledge or experience with asthma and 75.7% answered that asthma attacks can be triggered by specific predictable things in the environment. Most of them were familiar with some of the key asthma triggers (cat and dog dander, mold, pollen and dustmites), but fewer than 50% identified rodents and cockroaches as asthma triggers.¹⁰ This is significant, because especially during remodeling, cockroach and rodent droppings and frass can be disturbed, creating asthma trigger conditions.

How aware are builders/remodelers of construction practices or materials that can trigger an asthma attack? Although 85% of the respondents identified mold as an asthma trigger, only 43.1% identified indoor dampness as the condition “most likely to create a potential trigger” after construction or remodeling is completed, while 62.9% chose lack of filtration. They may be a result of the fact that the question allowed only one answer, so people had to choose between dust and mold. Or it may mean that builders and remodelers can more easily see the connection between filtering air and asthma than between a damp indoor environment and the growth of mold that can cause trigger an asthma attack.

Interestingly, in Question 7 where respondents were asked to minimize the post-construction condition they had identified in the previous question and were allowed to check more than one option, 80.2% checked “install filtration,” but 72.5% also checked “get rid of dampness.”

Do builders/remodelers know when they are working in a home where an occupant has asthma and do they do anything different? Only slightly more than a quarter of the respondents (26.8%) answered that they had ever done a job where they were aware that someone in the home had asthma. Most of the answers about what they did differently had to do with air handling, though a number indicated that they used different materials or avoided carpet. We cannot tell from the answers whether the builders suggested these approaches themselves or the homeowners requested the builders use them.

¹⁰ It is protein in the urine of rodents and the droppings of cockroaches that is the key asthma trigger. [cite]

Recommendations for Next Steps

It appears from the responses that builders/remodelers would both welcome and benefit from more information on this subject. These recommendations will address the substance of what information should be provided and also the mechanisms for delivering it effectively.

Topics

1. Causes of Asthma. The builders surveyed understood well the role of dust, less well the role of mold, and least well the role of pests in triggering an asthma attack. Further education should address the topic of asthma generally: prevalence, causes vs. triggers, what are the main triggers, how it affects the body, etc.
2. Construction practices and materials. Education should make the connection between construction practices, materials, and how they can create asthma-conducive conditions. This area should also provide suggestions for how builders/remodelers can avoid these conditions and resources for them to get more information from trustworthy sources (i.e. not marketers pushing a product).
3. Customer Relations. Education materials should encourage builders/remodelers to be proactive with their customers and routinely ask if anyone in the home has asthma and suggest how the job can be done to minimize asthma trigger conditions. This will be positive for customer relations both before and after the job is completed.

Methods of Delivery

1. Develop a training session that can be given at the annual IBA convention, regional meetings and other for where builders/remodelers go for training (e.g. suppliers' seminars, continuing education opportunities, vocational schools)
2. Develop a pamphlet or fact sheet that summarizes the key information and make it available through suppliers, professional associations, trade schools, etc.
3. Include an article about the results of this survey and recommendations in the IBA newsletter; provide similar information to Angie's List and other organizations that cater to this industry
4. Look into whether this topic can be integrated into the regular curriculum at vocational schools such as IVTC.
5. Promote Healthy Homes training for builders. There is already training available that addresses not only asthma, but prevention of lead hazards and other relevant issues that builders/remodelers would benefit from knowing.

APPENDIX 1

Changes to Wording of Questions in IBA/IKE Builders' Survey

After reviewing the responses to the first batch of surveys, and in consultation with staff at the Indiana State Department of Health Asthma Program, we changed the wording of several of the questions. For the questions in which changes were made, the March and June versions are presented below:

Question 1

March Version: *More people in Indiana and the United States are becoming aware of asthma as a chronic disease. Do you or your family have personal knowledge or experience regarding asthma?*

June Version: Do you or your family have personal knowledge or experience regarding asthma?

Question 2

March Version: Is the following TRUE or FALSE? Although asthma is chronic, asthma attacks are triggered by specific predictable things in the environment.

June Version: *More people in Indiana and the United States are becoming aware of asthma as a chronic disease. Is the following TRUE or FALSE? Although asthma is chronic, asthma attacks are triggered by specific predictable things in the environment.*

Question 3

March Version: *Based on your knowledge, which one or more of the following can trigger an asthma attack in general?*

June Version: *In your opinion, which one or more of the following can trigger an asthma attack in general?*

Question 4

March Version: *During new construction, including remodeling, which of the following activities or conditions might trigger an asthma attack?*

June Version: *During construction of an addition or remodeling, which of the following activities or conditions might trigger an asthma attack for the residents of the house?*

Question 5

March Version: If you checked any of the above, please provide details about specific products or ingredients in them, *work practices, or situations* that come to mind.

June Version: If you checked any of the above, please provide details about specific products or ingredients in them that come to mind.

Question 6

March Version: After new construction or remodeling, *what condition is most likely to create a potential trigger for an asthma attack?*

June Version: After new construction or remodeling, *which following conditions related to the recent work may create a potential trigger for an asthma attack for the residents of the house?*

Question 7

March Version: *How can you minimize the above condition from occurring (please check all that apply)?*

June Version: *What can the builder/remodeler do during building/remodeling to reduce the conditions identified in Question 6 from occurring?*

Question 9a

[Question 9 consists of 8 statements with which the respondent was asked to agree or disagree].

March Version: A person's asthma *is not* affected by construction practices

June Version: A person's asthma *can be* affected by construction practices.

Question 9d

March Version: *I would welcome* information on this subject.

June Version: *I would read more* information on this subject *if it were made available to me.*

The last question on the survey asked respondents to identify themselves by their role in remodeling (e.g. Builder, Remodeler, Designer or Supplier). In the June Version, we added three more options: Inspector, Realtor and Other.

March 2006 Version



Asthma Survey for the Indiana Builders Association

Asthma is a chronic and potentially debilitating disease that affects thousands of Hoosiers. Asthma episodes, where the airways constrict and make breathing difficult, can be caused by a variety of “triggers.” The Indiana Builders Association and Improving Kids’ Environment would like to know what you know about the impacts of construction activities on people with asthma. Please help us by filling out this survey, and check the IBA website for more information on healthy construction techniques.

1. More people in Indiana and the United States are becoming aware of asthma as a chronic disease. Do you or your family have personal knowledge or experience regarding asthma?

YES_____ NO_____

2. Is the following TRUE or FALSE? Although asthma is chronic, asthma attacks are triggered by specific predictable things in the environment.

TRUE_____ FALSE_____

3. Based on your knowledge, which one or more of the following can trigger an asthma attack?

Pollen_____ Mold_____ Dog/Cat Dander_____ Other Pet Dander_____
Excessive Heat_____ Carbon Monoxide_____ Dust Mites_____ Rodents_____
Cockroaches_____ Pesticides_____

4. During new construction, including remodeling, which of the following activities or conditions might trigger an asthma attack?

Use of adhesives, paints, other coatings_____ Activities that generate dusts_____
Off-gassing of products_____ Dampness_____ Others _____

5. If you checked any of the above, please provide details about specific products or ingredients in them, work practices, or situations that come to mind.

Adhesives, paints, coatings: _____
Activities that generate dusts: _____
Off-gassing: _____
Dampness: _____
Other: _____

11. After new construction or remodeling, what condition is most likely to create a potential trigger for an asthma attack?

(Please check one.)

Damp indoor environment _____ Leaking air handling systems _____ Inadequate ventilation_____
Lack of filtration_____

12. How can you minimize the above condition from occurring (please check all that apply)?

Get rid of dampness_____ Install filtration system during construction_____
Properly tune/balance HVAC system_____ Properly seal ducts_____ All of the above_____

13. Have you ever done a job for a customer where you were aware that a person with asthma would be occupying the built space?

YES_____ NO_____

If YES, please describe what you did voluntarily, or were asked to do, differently, because of this person's health condition.

14. Please answer the following by circling the appropriate response :

a. A person's asthma is not affected by construction practices.

Strongly Agree Agree Uncertain or Don't Know Disagree Strongly Disagree

b. Builders and remodelers need education on construction practices associated with asthma and asthma triggers.

Strongly Agree Agree Uncertain or Don't Know Disagree Strongly Disagree

e. This survey increased my awareness of asthma issues related to construction practices and products.

Strongly Agree Agree Uncertain or Don't Know Disagree Strongly Disagree

d. I would welcome information on this subject.

Strongly Agree Agree Uncertain or Don't Know Disagree Strongly Disagree

e. I would make the information available to employees or co-workers.

Strongly Agree Agree Uncertain or Don't Know Disagree Strongly Disagree

i. I believe that the construction industry must consider asthma issues when selecting construction materials and practices.

Strongly Agree Agree Uncertain or Don't Know Disagree Strongly Disagree

j. I understand potential insurance benefits for the builder/remodeler regarding the selection of construction materials and practices that take asthma issues into consideration.

Strongly Agree Agree Uncertain or Don't Know Disagree Strongly Disagree

k. I will modify my selection of construction materials and practices as a result of completing this survey.

Strongly Agree Agree Uncertain or Don't Know Disagree Strongly Disagree

15. There are several ways to provide information to those in the construction trades. Please indicate how effective you think each of the following would be, with 1 being the least effective and 5 being the most effective:

- a. Training sessions offered through trade associations 1 2 3 4 5
- b. Training sessions offered through suppliers 1 2 3 4 5
- c. Printed information available at suppliers 1 2 3 4 5
- d. Other?_____.

I am a: Builder/Employee of a Builder_____ Remodeler_____ Designer_____ Supplier_____

Thank you!



June 2006 Version



Asthma Survey for the Indiana Builders Association

For purposes of future education, the Indiana Builders Association and Improving Kids' Environment would like to know what you know about the impacts of construction activities on people with asthma. Asthma is a chronic and potentially debilitating disease that affects thousands of Hoosiers. Asthma episodes, where the airways constrict and make breathing difficult, can be caused by a variety of "triggers." Please help us by filling out this survey, and keep checking the IBA website for more information on healthy construction techniques.

1. Do you or your family have personal knowledge or experience regarding asthma?

YES _____ NO _____

2. More people in Indiana and the United States are becoming aware of asthma as a chronic disease. Is the following TRUE or FALSE? Although asthma is chronic, asthma attacks are triggered by specific predictable things in the environment.

TRUE _____ FALSE _____

3. In your opinion, which one or more of the following can trigger an asthma attack in general?

Pollen _____ Mold _____ Dog/Cat Dander _____ Other Pet Dander _____ Excessive Heat _____
Carbon Monoxide _____ Dust Mites _____ Rodents _____ Cockroaches _____ Pesticides _____

4. During construction of an addition or remodeling, which of the following activities or conditions might trigger an asthma attack for the residents of the house?

Use of adhesives, paints, other coatings _____ Activities that generate dusts _____

Off-gassing of products _____ Dampness _____ Others _____

5. If you checked any of the above, please provide details about specific products or ingredients in them that come to mind.

Adhesives, paints, coatings: _____

Activities that generate dusts: _____

Off-gassing: _____ Dampness: _____

Other: _____

6. After new construction or remodeling, which following conditions related to the recent work may create a potential trigger for an asthma attack for the residents of the house?

Damp indoor environment _____ Leaking air handling systems _____ Inadequate ventilation _____

Lack of filtration _____ Don't know _____

7. What can the builder/remodeler do during building/remodeling to reduce the conditions identified in Question 6 from occurring?

Get rid of dampness_____ Install filtration system during construction_____

Properly tune/balance HVAC system_____ Properly seal ducts_____ All of the above_____

Other_____ Can't_____

8. Have you ever done a job for a customer where you were aware that a person with asthma would be occupying the built space?

YES_____ NO_____

If YES, please describe what you did differently, if anything, because of this person's health condition.

9. Please answer the following by circling the appropriate response :

a. A person's asthma can be affected by construction practices.

Strongly Agree Agree Uncertain or Don't Know Disagree Strongly Disagree

b. Builders and remodelers need education on construction practices associated with asthma and asthma triggers.

Strongly Agree Agree Uncertain or Don't Know Disagree Strongly Disagree

f. This survey increased my awareness of asthma issues related to construction practices and products.

Strongly Agree Agree Uncertain or Don't Know Disagree Strongly Disagree

d. I would read more information on this subject if it were made available to me.

Strongly Agree Agree Uncertain or Don't Know Disagree Strongly Disagree

e. I would make the information available to employees or co-workers.

Strongly Agree Agree Uncertain or Don't Know Disagree Strongly Disagree

f. I believe that the construction industry must consider asthma issues when selecting construction materials and practices.

Strongly Agree Agree Uncertain or Don't Know Disagree Strongly Disagree

g. I understand potential insurance benefits for the builder/remodeler regarding the selection of construction materials and practices that take asthma issues into consideration.

Strongly Agree Agree Uncertain or Don't Know Disagree Strongly Disagree

h. I will modify my selection of construction materials and practices as a result of completing this survey.

Strongly Agree Agree Uncertain or Don't Know Disagree Strongly Disagree

10. There are several ways to provide information to those in the construction trades. Please indicate how effective you think each of the following would be, with 1 being the least effective and 5 being the most effective:

- a. Training sessions offered through trade associations 1 2 3 4 5
- b. Training sessions offered through suppliers 1 2 3 4 5
- c. Printed information available at suppliers 1 2 3 4 5
- d. Other_____.

I am a: Builder/Employee of a Builder_____ Remodeler_____ Designer_____ Supplier_____ Inspector_____

Realtor_____ Other_____

Thank you!